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1.0 PURPOSE AND SCOPE

(7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.7, 7.1.8, 7.1.9, 7.1.10, 7.1.11, 7.1.12, 7.1.13, 7.1.14, 7.1.15, 7.1.16, 7.1.17, 7.1.18, 7.1.19, 7.1.20, 7.1.21, 7.1.22)

This procedure details the Washington River Protection Solutions, LLC (WRPS) process for management of chemicals at non-laboratory facilities. The purpose of this procedure is to protect the worker, general public, and the environment. This procedure is used to comply with applicable regulations and statutes, and the requirements established by TFC-PLN-58. This process also implements Core Function 2, “Analyze Hazards,” as part of the Integrated Safety Management System (ISMS) core functions and guiding principles.

This procedure applies to all WRPS personnel and subcontractors involved in the procurement, receipt, storage, inventory, justification, or disposition of chemicals at WRPS-managed facilities with the following exceptions:

- Chemical Management activities at the 222-S Laboratory Complex are performed in accordance with ATS-310, 4.05 and ATS-LO-150-063.
- Management of reactive or time-sensitive chemicals at the 222-S Laboratory Complex is performed in accordance with ATS-LO-150-062.
- Chemicals needed to support a subcontract issued per TFC-BSM-CP_CPR-C-05 will be acquired and tracked as identified in the subcontract documents.
- Non-aerosol personal-use products such as foods/beverages, general office supplies, cosmetics, medicines and first aid supplies are exempt from this procedure, when used for the intended purpose in the intended setting. The duration and frequency of use shall be the same as that of a general consumer. Additional information on chemicals that are exempt from this procedure may be found in Attachment A.

For the purpose of this procedure, chemicals are defined as any element, chemical compound, or products containing elements and/or compounds. Chemicals that are managed by this procedure include, as a minimum, materials defined as hazardous according to the definitions of the Occupational Safety and Health Administration (OSHA), the National Fire Protection Association (NFPA), or the Uniform Fire Code (UFC) and materials required to be tracked by management. Additional information on chemicals that are managed by this procedure may be found in Attachment A of this procedure.

Use of hazardous chemicals is outside the scope of this procedure. TFC-ESHQ-S_IH-C-02 addresses requirements, training and controls needed when using and working with chemicals. Work packages, job hazard analyses, and task-specific procedures address specific requirements that must be implemented when utilizing chemicals.

The transportation of hazardous chemicals and/or materials is outside the scope of this procedure. Hazardous chemicals and/or materials are shipped in accordance with TFC-PLN-58. Contact the Transportation Safety Officer before transporting or shipping hazardous chemicals.

Management of Hazardous/Dangerous waste as defined in accordance with WAC-173-303 is outside the scope of this procedure. This includes the chemical and radiological wastes in tank farms.

With regard to Emergency Planning and Community Right-to-Know Act (EPCRA) reporting and notifications, the Hanford Site is listed by the Environmental Protection Agency (EPA) as a single facility reporting under Community Right-to-Know ID# WA7890008967. WRPS provides required inventory and use information to the Hanford Site EPCRA subject matter expert for use in preparing Hanford Site EPCRA reports and notifications.

NOTE: Effective 5/26/2012 per OSHA 29 CFR 1910.1200, manufacturers will begin replacing Material Safety Data Sheets (MSDS) with Safety Data Sheets (SDS). During the implementation period, manufacturers are allowed to use either format. To reflect this change, the term “MSDS” has been replaced with “MSDS/SDS” when referring to these documents.

2.0 IMPLEMENTATION

This procedure is effective on the date shown in the header.

3.0 RESPONSIBILITIES

3.1 Waste Services Manager

(7.1.8, 7.1.9, 7.1.22)

Approves and certifies any WRPS chemical management reports that are necessary to meet regulatory requirements.

3.2 Managers/Line Managers

(7.1.1, 7.1.4, 7.1.18, 7.1.19, 7.1.21, 7.1.22)

- Ensure chemical management operations, including acquisitions, use, storage, transportation, and final disposition, in compliance with the requirements of TFC-PLN-58, TFC-ESHQ-S_IH-C-02, and this procedure.
- Promote the selection and use of chemicals that minimize hazards and meet Sustainable Acquisition (also known as Environmentally Preferred Purchasing or EPP) requirements in accordance with TFC-PLN-123.
- Ensure personnel handling the chemicals are trained in accordance with the applicable OSHA Standards and WRPS training requirements in accordance with TFC-PLN-61.
- Verify only trained, licensed, and qualified personnel transport hazardous chemicals from one storage location to another in accordance with Department of Transportation (DOT) regulations.

3.3 Lead, Chemical Management Program

(7.1.1, 7.1.7, 7.1.8, 7.1.9, 7.1.12, 7.1.13, 7.1.14, 7.1.22)

- Ensure the chemical inventory data, applicable source reduction/recycling information per 42 USC 13106, data certifications, and contractor certifications (as applicable) that are submitted to support the Hanford Site preparation of the following Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA) reports. Manage the submitted information as record material.
 - Emergency Planning Notification as required by 40 CFR 355

- Tier II Emergency and Hazardous Chemical Inventory report as required by 40 CFR 370
- Toxic Chemical Release Inventory report as required by 40 CFR 372.
- Verify chemical management procedures include required Emergency Preparedness Hazard Assessment screening requirements in accordance U.S. Department of Energy (DOE) Order 151.1C.
- Assist in correcting problems or issues related to chemical management.

3.4 All Employees

(7.1.1, 7.1.2, 7.1.4, 7.1.19, 7.1.21, 7.1.22)

The term employees, includes both WRPS and subcontractor staff performing work under the scope of this procedure.

- When acquiring chemicals, follow the steps in Section 4.1 of this procedure. This includes chemicals obtained from other site contractors or as vendor samples. The only exceptions are chemicals identified as exempt from this procedure in Section 1.0.
- Acquire chemicals tracked as fixed inventory items in accordance with Section 4.1 of this procedure.
- Before using chemicals, read and understand information on the hazards and handling requirements. This information can be found on the manufacturer's label MSDS/SDS, and work control documents and procedures.
- Store, segregate, and rotate chemicals in accordance with the recommendations of the manufacturer, or as indicated by the accepted industrial practices and in accordance with this procedure.
- When moving chemicals to a new storage location, follow the steps outlined in Section 4.4.3 of this procedure.
- Follow the specific precautions in Section 4.4.2 when storing or handling time-sensitive chemicals.

3.5 Industrial Hygiene

(7.1.1, 7.1.2, 7.1.4, 7.1.13)

- Answer questions regarding chemical constituents and substitutions.
- Perform chemical hazard assessments, as applicable.
- As requested, assist in identifying appropriate storage locations including any needed segregation for incompatible chemicals.
- As requested, support Security and Emergency Services in performing Emergency Preparedness Hazard Assessment (EPHA) quantitative analyses for chemical hazards to meet the requirements of DOE O 151.1C.

- Assist in identifying and implementing appropriate exposure controls.

3.6 Security and Emergency Services

(7.1.5, 7.1.6, 7.1.11, 7.1.12, 7.1.14, 7.1.17, 7.1.20)

- Ensure applicable Emergency Preparedness evaluations (e.g., Hazard Surveys) are conducted.
- As requested, review individual acquisition requests for Emergency Preparedness considerations.
- As needed, perform emergency preparedness hazard planning assessment (EPHA) analyses.

3.7 Fire Protection

(7.1.2, 7.7.15, 7.1.20)

As requested provide support in ensuring flammable and combustible materials are properly stored.

3.8 Waste Services

(7.1.13, 7.1.15, 7.1.20)

- Assist in identifying appropriate disposition pathways for both used and unused forms of a chemical.
- As applicable, answer questions regarding planning for final disposition of chemicals.

3.9 Engineering

(7.1.5, 7.1.13, 7.1.15, 7.1.20)

- As applicable, answer questions related to ensuring incoming quantities of chemicals will be allowed within a facility's safety basis envelope.
- If the chemical has the potential to enter a waste tank (e.g., through a pit drain or ventilation condensate system), ensure the chemical is approved for use in RPP-11192.

3.10 Procurement Services

(7.1.11, 7.1.16, 7.1.18, 7.1.19)

- Process requests for chemicals in accordance with TFC-BSM-CP_CPR-C-01 and TFC-BSM-CP_CPR-C-06 or TFC-BSM-CP_CPR-C-05 as applicable.
- Make information related to the DOE Sustainable Acquisition (also known as Environmentally Preferred Purchasing or EPP) available to the planner/requestor in accordance with TFC-BSM-CP_CPR-C-01 and TFC-BSM-CP_CPR-C-06 or TFC-BSM-CP_CPR-C-05 as applicable. Provide the planner/requestor with information about environmentally preferable alternatives for requested chemicals in accordance with TFC-PLN-123.
- When receiving chemicals, follow the steps outlined in Section 4.3 of this procedure, TFC-BSM-CP_CPR-C-18 and any steps noted in the Special Instructions section of the Material Request or Bill of Material (MR/BOM).

- Assist users in excessing unwanted unused chemicals in accordance with TFC-BSM-CP_CPR-C-18.

4.0 PROCEDURE

(7.1.1, 7.1.4, 7.1.7, 7.1.8, 7.1.9)

The Hanford Chemical Inventory Tracking System (CITS) database is used to provide a central location for chemical management information.

Compressed gases are managed in accordance with TFC-ESHQ-S-STD-25.

Flammable and combustible liquids are managed in accordance with TFC-ESHQ-FP-STD-03.

Chemical Management activities at the 222-S Laboratory Complex are performed in accordance with ATS-310, 4.05 and ATS-LO-150-063.

This procedure is written to provide instructions in performing chemical management activities. Procedure steps may be performed out of sequence, as necessary.

Unless directed differently, notifications required in the performance of this procedure may be made by e-mail, memo, or other suitable written or electronic method. Information may be sent to the Tank Farm Chemical Management POC through:

- E-mail at ^Tank Farm Chemical Management
- Plant Mail: Tank Farm Chemical Management, T6-03.

See Figure 1 for procedure flowchart.

CAUTION: A damaged or leaking container may present hazards to workers and/or the environment. Implement actions of TF-AOP-011 as applicable. Ensure any necessary controls and protections are in place before attempting to mitigate or clean up a spill.

4.1 Chemical Acquisition

(7.1.1, 7.1.2, 7.1.4, 7.1.7, 7.1.8, 7.1.11, 7.1.12, 7.1.13, 7.1.15, 7.1.16, 7.1.18, 7.1.19, 7.1.21, 7.1.22)

Acquisition of chemicals shall include the actual purchasing of chemicals or any other means of acquiring chemicals such as borrowing from another Hanford facility or requesting free samples from vendors.

Whenever possible, less hazardous alternatives should be considered when acquiring chemicals. Contact Industrial Hygiene for assistance in identifying less hazardous alternates.

Acquisition of chemicals should include a comparison against, and be in accordance with, all applicable SA requirements including the U.S. Department of Agriculture designated biobased-content products, as well as EPA Significant New Alternatives Policy (SNAP), Program acceptable substitutes for Ozone Depleting Substances (ODS), as specified in TFC-BSM-CP_CPR-C-01 and TFC-PLN-123. Exemptions to certain SA requirements may be made based on the Cost too high, Availability, or does not meet Performance criteria (CAP). A written justification is required for any SA exemptions and must be submitted as part of the requisition process. Additional information on SA requirements may be found on the WRPS Procurement's EPP webpage.

Only Material Coordinators may use a Purchasing Card to acquire chemicals subject to the Chemical Management Plan (TFC-PLN-58).

Acquisition of carcinogens is subject to additional controls and restrictions. See TFC-ESHQ-IH-STD-11 for information on identification and control of carcinogens.

If a chemical is being acquired through a means other than purchasing, at a minimum, steps 2, 3, 7, 8, and 9 of this section are to be completed prior to obtaining the material for use. Industrial Hygiene must also be notified to ensure the acquisition is reviewed in accordance with TFC-ESHQ-S_IH-C-02. Examples include but are not limited to:

- Obtaining chemicals from another Hanford Site contractor or subcontractor
- Obtaining chemicals as free samples.

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|-----------|---|
| Requestor | <ol style="list-style-type: none"> 1. Determine the specific chemicals and the minimum quantity required for use in the near term (e.g., six months or less; do not stockpile material inventories). 2. If ordering flammable or combustible liquids, refer to procedure TFC-ESHQ-FP-STD-03 to ensure the requested quantity is within allowed limits for the intended storage location. Contact Fire Protection for assistance as needed. 3. Ensure an appropriate storage location has been identified for the chemical in accordance with Section 4.4.1 of this procedure. Contact Industrial Hygiene for assistance as needed. |
|-----------|---|

- | | |
|-----------|--|
| Requestor | <ol style="list-style-type: none"> 4. Initiate a Material Request within the Tank Farm Material Management System (TFMSS) in accordance with TFC-BSM-CP_CPR-C-01 and TFC-BSM-CP_CPR-C-06. |
|-----------|--|

NOTE: If an approved MSDS/SDS is not on file with the Hanford MSDS administrator or if the existing MSDS is more than three years old, the request shall not be approved until current MSDS/SDS information has been provided to an Industrial Hygienist or the Chemical Management POC for submission to the Hanford MSDS administrator.

- | | |
|-------------------------------------|---|
| Chemical Management POC or Delegate | <ol style="list-style-type: none"> 5. Determine if the chemical(s) is/are exempt from chemical management requirements as defined in Section 1.0 of this procedure. For each exempt chemical note the exemption type in the applicable item's Comments section of the Material Request. <ol style="list-style-type: none"> a. If all chemicals in the request are exempt from chemical management requirements, go to step 8. b. If there are any chemicals in the request that are not exempt from chemical management requirements go to step 6. 6. For each non-exempt chemical being requested, perform procurement review in accordance with Section 4.2 of this procedure. |
|-------------------------------------|---|

7. Based on completion of the Chemical Management POC Procurement Review in Section 4.2 of this procedure, determine if the material being requested will be tracked as a chemical in CITS.
 - a. If the chemical will be tracked go to step 8.
 - b. If the chemical will not be tracked, note that the chemical does not require barcoding in the Special Instructions section of the MR/BOM and go to step 9.
8. As requested, determine if the chemical is suitable for tracking as a “fixed inventory item” in accordance with Section 4.4.4.
 - a. If the chemical will be managed as a “fixed inventory item”, note “Fixed inventory item, no barcode required” in the Special Instructions section of the BOM/MR. Include the applicable chemical barcode reference(s).
 - b. If individual container tracking is required, note that container barcodes are required in the Special Instructions section of the BOM/MR.
9. Check the CITS database and the Hanford Excess Property Bulletin Board (<http://www5.rl.gov/rapidweb/procweb/EPBulletinBoard/viewcategory.cfm>) to determine if the requested product is already available.
 - a. If the product is available, continue to step 10.
 - b. If the product is unavailable, skip to step 11.
10. If the chemical is available, have the requestor determine if the available product will meet the needs of the user.
 - a. If the user verifies the available chemical is acceptable, as requested, assist in transfer of the product and state in the TFMSS request that the chemical is available on-site and no additional chemical is to be purchased.
 - b. If the available product will not meet the needs of the user, continue with the procurement process.
11. Once the chemical tracking determination has been completed and tracking instructions have been entered in the Special Instructions section of the MR/BOM, approve or return the BOM/MR in accordance with TFC-BSM-CP_CPR-C-01 and TFC-BSM-CP_CPR-C-06.

Chemical
Management
POC or Delegate

4.2 Chemical Management POC Chemical Acquisition Review

(7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.7, 7.1.8, 7.1.11, 7.1.12, 7.1.13, 7.1.14, 7.1.15, 7.1.16, 7.1.17, 7.1.18, 7.1.19, 7.1.21, 7.1.22)

NOTE: With the exception of steps 3 through 8, the steps in this section may be performed out of sequence or in parallel.

The Emergency Preparedness Hazard Assessment (EPHA) Screening is incorporated as steps 3 through 8 of this review.

Unless otherwise noted, all steps are performed by the Chemical Management POC or delegate.

The purpose of performing the EPHA screening is to identify those chemicals which, in the event of an uncontrolled release, would:

- Immediately threaten or endanger those who are in the close proximity;
- Have a potential to disperse beyond the immediate vicinity of the release point and threaten the health and safety of onsite personnel or the public; and
- Disperse at a rate that requires time-urgent response to implement effective protective actions for workers and the public.

For chemicals, the overriding emergency management concern is the acute human toxicity of the substances by the airborne pathway including exposures by inhalation, dermal contact, absorption through the eyes and mouth/nose, etc.

Chemical
Management
POC or Delegate

1. Determine if there is an MSDS/SDS for the requested chemical(s) entered in the Hanford MSDS Database.
 - a. If a Hanford MSDS reference is provided, verify the reference matches the requested chemical and note the date of the MSDS.
 - b. If there is no MSDS/SDS in the Hanford database or the MSDS is more than three years old, as requested, assist in obtaining and submitting the needed MSDS/SDS to the Hanford MSDS administrator.
2. Determine if the storage location has been identified.
 - a. If the storage location is not identified, have the requestor provide the storage location.
 - b. If the Inventory Control Group Point of Contact (ICG-POC) of the storage location is neither the requestor nor the manager on the BOM/MR, notify the ICG-POC of the requested chemical and the intended storage location.
3. Determine if the chemical is commonly available to and used by the general public, if the formulation and concentration is the same as for products that are distributed without significant restrictions to the public. Examples include cleaning products, bleach, motor oil, gasoline, etc.).
 - a. If the chemical meets the criteria for "Common Use," go to step 9.
 - b. If the chemical is not considered a Common Use chemical, go to step 4.

4. Determine if the chemical has an NFPA health hazard rating of 3 or 4.
 - a. If the chemical has an NFPA health hazard of 0, 1, or 2, go to step 9.
 - b. If the chemical has an NFPA health hazard of 3 or 4 or if no NFPA health hazard rating is listed, go to step 5.
 - c. If no NFPA health hazard rating is available, contact the Hanford MSDS administrator to provide one for the applicable MSDS/SDS.
5. Determine if the individual containers exceed 5 gallons or 40 lbs (10 lbs for compressed gas), or if the total aggregate quantity exceeds 50 gallons or 400 lbs (100 lbs for compressed gas).
 - a. If the quantity thresholds are not exceeded, go to step 9.
 - b. If the quantity thresholds are exceeded, go to step 6.
6. Determine if the chemical meets the following dispersibility criteria:
 - The substance is a solid at normal temperatures and the material is a powder
 - The substance is a liquid at normal temperatures and the vapor pressure is 1mmHg or greater at about 25 degrees C.
 - a. If the chemical does not meet the dispersibility criteria, continue to step 9.
 - b. If the chemical meets the dispersibility criteria, go to step 7.
7. If the requested material did not screen out for further EPHA consideration based on questions 3-6 of this section, determine if has already reviewed and approved the request.
 - a. If Emergency Services has approved the request, go to step 9.
 - b. If Emergency Services has not approved the request, go to step 8.
8. Return the request providing the following information to the requestor and Emergency Services:
 - The results of the EPHA screen.
 - Direction for the requestor to contact Emergency Services for assistance in determining an appropriate path forward regarding the requested material.
9. If this request will result in the storage location exceeding any emergency planning quantity thresholds specified in 29 CFR 1910.119, return (terminate) the request and direct the requestor to contact the TFC-PLN-100 ESH&Q Requirements Basis Document Manager.

10. If this request will result in WRPS exceeding any emergency planning quantity thresholds specified in 40 CFR 68.130 or 40 CFR 302.4, return the request directing the requestor to contact Emergency Services for assistance in determining if the request needs additional Emergency Preparedness consideration.
11. If this request includes any chemicals identified as an EHS per 40 CFR 355, note in the comments section for each applicable item that the product is regulated as an EHS chemical.
12. If the quantity of any chemical request is greater than 50% of the reportable quantity in 40 CFR 68.130, 40 CFR 302.4 or 40 CFR 355, ensure that Environmental is notified about the request.
13. Upon completion of the Chemical Acquisition Review go to Section 4.1, step 7.

4.3 Receiving Hazardous Materials

(7.1.2, 7.1.4, 7.1.7, 7.1.8, 7.1.9, 7.1.13, 7.1.15, 7.1.22)

CAUTION: When receiving hazardous materials, be alert to unexpected chemical hazards resulting from damaged or leaking containers.

Material
Coordinator

1. Receive and verify shipment is a material ordered per TFC-BSM-CP_CPR-C-18.
2. Check BOM/MR “Special Instructions” to determine if item is exempt from individual container barcoding.
 - a. If the item is identified as exempt from barcoding, release the material to the requestor in accordance with TFC-BSM-CP_CPR-C-18.
 - b. If the item is not exempt, contact the Chemical Management POC to have the containers barcoded.
3. If an unordered chemical is received, mark as “DO NOT USE” and contact the requestor to determine if the item is acceptable. For example, an operating fluid included “free of charge” as part of an equipment order.
 - a. If the item is not accepted by the requestor, manage in accordance with TFC-BSM-CP_CPR-C-18.
 - b. If the item is accepted by the requestor, contact the Chemical Management POC for assistance.

Chemical
Management
POC or Delegate

4. If an unordered chemical is received, determine if it is exempt from management as a chemical in accordance with this procedure.
 - a. If the item is identified as exempt from barcoding, direct the Material Coordinator to release the material to the requestor in accordance with TFC-BSM-CP_CPR-C-18.
 - b. If the item is not exempt, ensure it is managed as an item acquired by a means other than purchasing as outlined in Section 4.1 then receive and barcode in accordance with this procedure.
5. Using a copy of the TFMSS request report or other procurement information, verify the received item is the same as what was ordered
 - a. If the item is the same as what was ordered, continue receiving process.
 - b. If the item is not the same as what was ordered, manage as an unordered chemical.

NOTE: An expiry may be identified as a formal expiration date or with a less formal term such as “use by” or “best by” date.

6. As applicable verify the received product is not expired.
 - a. If the item is expired and the expiry is related to safety, notify the material coordinator that the item may not be received and halt the receipt process in this procedure.
 - b. If the item is expired and item is assigned an enhanced quality level, notify the material coordinator that the item may not be received and halt the receipt process in this procedure
 - c. If an item is expired and there are no safety or enhanced quality factors, direct the material coordinator to contact the requestor to obtain guidance on whether the item will be accepted and halt the receipt process in this procedure
 - d. If notified by the material coordinator that the material has been determined to be acceptable for the intended use, restart the receipt process in this procedure.
7. Attach barcode label to a clean, dry, durable container surface.

Chemical Barcode Label Example



NOTE: It is recommended that a copy of the TFMSS request report be used in this step as it will contain much of the required information and only need to be annotated to capture the remainder.

8. Obtain the following information (as applicable):

- Barcode number
- Product name
- Manufacturer name
- Manufacturer's product or catalog code
- Hanford MSDS/SDS number
- Container size (e.g., 1-qt, 3-gm, 2-liter, 225-cft)
- Container type (e.g., can/metal, bottle/plastic, can/aerosol)
- Expiry date
- Date received
- Storage location
- BOM or MR number
- TFMSS Order Number.

Material
Coordinator

9. Once barcoded (as applicable), turn material over to requesting organization.

ICG POC or
Requestor

10. Safely store the material in an appropriate location using segregation practices as needed to separate incompatible materials in accordance with TFC-PLN-58, TFC-ESHQ-FP-STD-03, and this procedure.

11. As appropriate, for chemicals with a limited shelf life, ensure the date the chemical expires is printed or written on the container.

Chemical
Management
POC or Delegate

12. If not already known, identify the assigned Inventory Control Group and the ICG-POC.

NOTE: Additional information may be entered as appropriate.

13. Enter the container information as a "New Inventory Item" in CITS. Include all information obtained in step 4.3.8.

NOTE: If for some reason, a CITS item entry cannot be moved from temporary to active CITS inventory within the identified time limits, send the container information directly to the Hanford EPCRA Subject Matter Expert.

14. Ensure inventory items entered into CITS are in the active inventory (not in Temporary inventory):

- a. Within 14 days of receipt if the product is regulated under 40 CFR 355 as an Extremely Hazardous Substance (EHS).
- b. Within 45 days of receipt for non-EHS materials.
- c. By January 5 for items received between December 15 and December 31 of the previous calendar year, or as directed by the Hanford EPCRA Subject Matter Expert.

4.4 Storing and Tracking Chemicals

4.4.1 Chemical Storage Requirements

(7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.20, 7.1.22)

Chemical products should be stored separately from general supplies for safety and ease of inspection.

Rotate new product with existing stock so that the oldest stock is available first.

Chemical storage locations must be kept clean and orderly. Keep all chemical/product containers tightly covered or closed when not in use.

Keep the minimum chemical inventory necessary for uninterrupted operation to reduce fire, personnel exposure, and waste disposal hazards.

Proper stacking procedures must be followed when storing chemicals. Stack containers so that they will not be unstable or become dislodged or fall.

1. Chemical Compatibility.

All chemicals are stored according to compatibility in accordance with the recommendations of the manufacturer (e.g., MSDS/SDS, label information) or as indicated by accepted industrial practices. This includes manufacturer's recommendations for temperature and humidity control and chemicals with radioactive hazards.

Separate storage locations or specially designed cabinets (e.g., flammable storage cabinets) may be used to segregate incompatible chemicals. At a minimum, the following groups of chemicals must be stored segregated from each other:

- Flammable and combustible liquids
- Flammable and combustible solids
- Inorganic acids
- Oxidizing acids
- Organic acids
- Bases (caustics)
- Oxidizers
- Organic peroxides.

If there are any questions about chemical compatibility, contact the facility Industrial Hygiene POC.

2. Unlabeled Chemical Containers.

NOTE: Laboratory-Use chemical containers shall be managed in accordance with ATS-LO-150-063.

All containers shall be properly labeled. If unlabeled (or improperly labeled) containers are found, they shall be immediately taken out of service.

- a. If the contents are known, the container shall be labeled in accordance with TFC-ESHQ-S_IH-C-02 , Section 4.5. If there are no additional safety concerns, the relabeled container may be returned to service.
- b. If the contents are unknown the container shall be managed in accordance with TFC-ESHQ-S_IH-C-02 , Section 4.6.

3. Chemical Compatibility with Waste Tanks.

Chemicals that have the potential to enter a waste tank (e.g., through a pit drain or ventilation condensate system), must be evaluated and approved for use in accordance with RPP-11192. Chemicals listed in RPP-11192, must be managed in accordance with the identified limitation(s).

Contact Engineering to request an evaluation for any chemical or the use condition for an approved chemical that is not addressed by RPP-11192 before storing, staging or using it in a manner where there is a potential for it to enter a waste tank.

4. Flammable Chemical Storage Requirements.

Quantities of flammable materials that may be stored in any one area are limited. Restrictions also limit the number of flammable storage cabinets that may be located in any one fire area. Only approved containers and cabinets are used for the storage of flammable materials. Refer to TFC-ESHQ-FP-STD-03 for the specific requirements that must be followed when storing and handling flammable and combustible liquids.

Contact Fire Protection for assistance in determining specific flammable material storage limits and controls.

5. Hazardous Material Storage Facilities.

Hazardous material storage facilities are subject to additional design and operational controls in accordance with NFPA requirements. See TFC-ESHQ-FP-STD-13 for requirements related to identified hazardous material storage facilities.

6. Outdoor Storage Locations.

Barrels and smaller containers of chemicals in a storage yard should be protected/shielded from direct sunlight to protect against content degradation, overheating, container bulging, or rupture.

When flammable storage cabinets are located outdoors, plugs in the vent holes should be removed to prevent accumulation of vapors.

7. Chemical Storage Tanks.

Adjacent storage tanks containing incompatible chemicals are provided with separate secondary containment structures to prevent mixing in the event of leaks or tank failure.

Chemical storage tanks containing hazardous chemicals must be cleaned when the tanks are emptied or when the chemical in the tank is changed. All requirements of DOE-0360 must be addressed when tank entry is necessary.

4.4.2 Reactive and Time-Sensitive Chemicals

(7.1.1, 7.1.2, 7.1.21, 7.1.22)

Reactive chemicals are those chemicals that undergo rapid and violent chemical reaction when exposed to incompatible conditions such as heat, spark, air, or light, or that undergo explosive decomposition due to impact, friction, or grinding.

Time-sensitive chemicals are those chemicals or chemical products that develop additional hazards upon prolonged storage. Chemicals that are peroxidizable or auto-polymerize are examples of time-sensitive chemicals.

Some products contain stabilized formulations of reactive or time-sensitive chemicals and have reduced or delayed potential for forming hazardous by products. As a result they will have extended expiration dates.

Products that may contain stabilized formulations of reactive or time-sensitive chemicals include but are not limited to:

- Catalysts containing methyl ethyl ketone peroxide (MEKP)
- PVC pipe primers
- Engine starting fluids.

All reactive and time-sensitive materials should be monitored and properly disposed of according to the expiration date. If these materials are left in storage long enough to form hazardous by-products, their management and disposal becomes increasingly hazardous and costly.

WARNING:

Consider any reactive or time-sensitive chemicals that appear to have altered to be highly unstable and potentially explosive. Examples of altering include but are not limited to:

- Layering (separation of a liquid into layers with a distinct boundary)
- Crystal formation
- Change in color
- Increased viscosity (indicating evaporation)
- Contamination by other materials.

If any of these signs are present, Stop Work and follow the warning actions below.

- a. Leave the container alone
- b. Isolate the area
- c. Inform the manager or building emergency director (BED).

The manager or building emergency director will contact Industrial Hygiene and the WRPS fire department representative to identify proper handling and disposal.

4.4.3 Moving Containers to New Storage Locations Between Tank Farm Facilities

(7.1.2, 7.1.7, 7.1.22)

Hazardous materials moved via a motor vehicle may be subject to DOT shipping requirements. This includes roads within site boundaries. Contact the Transportation Safety Officer for guidance before transporting chemicals.

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| All Employees | 1. When moving containers to a new location, store them in accordance with manufacturer instructions (e.g., container labels, MSDS/SDS). |
|---------------|--|

NOTE: To help maintain the accuracy of the chemical inventory, employees are encouraged to provide the barcode number and the new storage location of the relocated container to the applicable ICG-POC or the chemical management POC.

- | | |
|---|--|
| Chemical
Management
POC or Delegate | 2. As requested, assist in arranging transfer of chemicals between facilities. |
| | 3. Update the CITS database when notified of a change in storage location. |

4.4.4 Requesting “Fixed Inventory” Status for a Chemical

CITS has a limited option called “Fixed Inventory Item.” This option permits the tracking of materials that are part of standard or stock inventories as an unchanging inventory item instead of tracking each individual container (e.g., compressed gas cylinders in a gas dock or a supply of routine janitorial cleaners in a stockroom).

There are specific conditions that must be met in order to use the “Fixed” option.

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|-------------------------------|---|
| ICG-POC or
Delegate | 1. Contact the chemical management POC to request the assignment of a fixed inventory item barcode. |
| Chemical
Management
POC | <p>2. Determine if the chemical and the conditions are suitable for fixed inventory item status.</p> <p>a. If fixed inventory status is approved, notify the ICG-POC of the approval and obtain needed information to set up fixed inventory item in CITS.</p> <p>b. If fixed inventory status is not appropriate to the conditions, contact the requesting ICG-POC to determine an appropriate alternative.</p> <p>3. Provide fixed inventory information to the ICG POC that includes the following information:</p> <ul style="list-style-type: none"> • Barcode number • Product name • Hanford MSDS/SDS number • Container size with units (volume or weight) • Maximum number of containers. |

A label at the storage location, a copy of a CITS report highlighting this information, a log sheet, or other suitable method may be used for this purpose.

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|-------------------------------------|----|--|
| ICG-POC or Delegate | 4. | Maintain fixed inventory information for the assigned Inventory Control Group that includes the following information: <ul style="list-style-type: none"> • Barcode number • Product name • Hanford MSDS/SDS number • Container size with units (volume or weight) • Maximum number of containers. |
| Requestor | 5. | Request procurement of any replacement inventory as a chemical in accordance with Section 4.1 of this procedure. |
| ICG-POC or Delegate | 6. | Contact the Chemical Management POC if there is any change to the following: <ul style="list-style-type: none"> • Storage location • An increase or significant decrease in the maximum number of containers. |
| Chemical Management POC or Delegate | 7. | Ensure updated information is entered into the CITS. <ol style="list-style-type: none"> a. If the change is limited to a change in the maximum number of containers, update the existing container entry (barcode). b. If the change is to anything other than the maximum number of containers, create a new container entry for the chemical and disposition the old entry when all applicable containers are used or moved. |

4.4.5 Performing a Facility Chemical Inventory

(7.1.7, 7.1.4, 7.1.8, 7.1.9, 7.1.13, 7.1.22)

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|-------------------------------------|----|---|
| Chemical Management POC | 1. | At least annually perform a facility chemical inventory for all TOC facilities. |
| ICG POC or Delegate | 2. | As requested, provide access and assistance in performing chemical inventories. |
| Chemical Management POC or delegate | 3. | If available, use the barcode reader to scan the chemical container barcodes in performing the chemical inventory. |
| | 4. | If un-barcoded chemical containers that meet the criteria for tracking within CITS are found, barcode the container(s) and enter applicable container and storage location information into CITS. |

5. Update the chemical inventory in the CITS database.
 - Ensure updated information is in the Active inventory within 10 days for all EHS chemicals.
 - As possible, ensure any Items in the Temporary are moved to Active inventory by December 31 each year. Any item not able to be entered into Active inventory by December 31 must be reported separately to the Hanford EPCRA reporting SME.
6. Provide a copy of the updated inventory of chemicals to the applicable Inventory Control Group POC at least annually.
7. Provide to the applicable Inventory Control Group POC at least annually, a chemical use review and justification report of those items that are identified as older than five years, expired, or past the recommended use date.
- ICG POC or Delegate 8. Within 30 days of receipt of the chemical use review and justification reports, complete the review and justification sections according to the instructions provided by the Chemical Management POC.
- Chemical Management POC 9. Submit inventory information, as required, for the preparation of the Hanford Site (EPCRA) reports:
 - Tier II Emergency and Hazardous Chemical Inventory report required by 40 CFR 370 and
 - Toxic Chemical Release Inventory report required by 40 CFR 372.
10. Per 42 USC 13106, provide source reduction/recycling information for all chemicals included in the Toxic Chemical Release Inventory report.
11. Document any issues identified during inventories of chemical storage areas on a Problem Evaluation Request (PER) in accordance with TFC-ESHQ-Q_C-C-01 to track corrective actions.

4.5 Final Disposition of Chemicals (7.1.9, 7.1.10, 7.1.11, 7.1.16, 7.1.18, 7.1.19)

Final disposition includes consumption, re-distribution, recycling, and waste disposal.

This procedure does not cover waste management systems, such as waste accumulation areas and treatment, storage, and/or disposal facilities.

All Employees 1. If the contents of a barcoded container are fully consumed, manage the empty container in accordance with WRPS waste management procedures.

NOTE: To help maintain the accuracy of the chemical inventory, employees are encouraged to provide the barcode number of the empty container to the applicable facility ICG-POC or the chemical management POC.

ICG POC or Delegate 2. When a chemical no longer has an identifiable purpose:

a. Determine if the chemical is usable or non-usable. Examples of non-usable chemicals can include but are not limited to:

- Past Expiration Date
- Poor product condition
- Damaged container (e.g., aerosol can that will not work)
- Product contaminated with debris or other chemicals
- Product is radioactively contaminated.

b. Contact the Chemical Management POC for assistance as needed in determining usability.

3. Initiate the disposition process based on chemical usability.

a. If the chemical is no longer usable manage the chemical as waste in accordance with TO-100-052.

b. If the chemical is usable, go to step 4.

NOTE: The Chemical Management POC can provide guidance on submitting an ad to the MSA Property Excess Bulletin Board.

4. Ensure that the available material is posted on the MSA Property Excess Bulletin Board.

5. Notify the Chemical Management POC that the chemical is available for redistribution.

Chemical Management POC or Delegate 6. Note the chemical as available for redistribution in CITS by selecting "Yes" in the *Excess* field.

NOTE: Depending on hazards and whether there is a reliable demand for the product, not all chemicals will be accepted by the MSA Property Excess program.

ICG-POC or
Delegate

7. Determine if the container(s) meets the following criteria to submit chemicals for Property Excess.
 - The container(s) and label(s) are in good condition
 - Containers with expiry information are not expired or beyond any manufacturer stated shelf life.
 - There is no indication the container(s) has/have ever been opened (e.g., any manufacturer seals are still intact).
 - MSA Property Excess has confirmed the specific product will be accepted for Excessing.
8. Initiate the disposition process.
 - a. If Property Excess criteria are met, go to step 9.
 - b. If Property Excess criteria are not met, go to step 10.
9. Request Materials Control initiates the excess process in accordance with TFC-BSM-CP_CPR-C-18. Provide the following information as part of the material description:
 - Product name
 - Container barcode number (as applicable)
 - Hanford MSDS/SDS number
 - Expiration date (as applicable)
 - Verification that the container(s) and label(s) are in good condition
 - Verification that the container(s) is/are unopened (e.g. any manufacturer seals still intact)
 - The condition of the container including any labeling
 - If the container has been opened, the quantity remaining (e.g., ¾, ½, or ¼ full).

ICG-POC or
Delegate

10. If a barcoded chemical container is to be re-distributed from a TOC facility or a sub-contracted organization performing work for the TOC either on-site or off-site, remove or deface the tank farm specific chemical barcode at the time of transfer or pick-up.

NOTE: Chemical Management can assist in generating a listing of most container information using the CITS reporting function.

ICG-POC or
Delegate

11. If a chemical becomes degraded, expired, or a chemical declared as excess in CITS remains unclaimed and has no identifiable purpose, manage the container(s) in accordance with TO-100-052. Provide the following information as part of the waste description

- Product name
- Product manufacturer
- Hanford MSDS/SDS number
- Container barcode number (as applicable)
- Container type (e.g., aerosol can, plastic bottle) and size
- Expiration date (as applicable)
- If there are any concerns or issues regarding container condition of the container including degraded or missing labels
- If the container has ever been opened, the quantity remaining (e.g., $\frac{3}{4}$, $\frac{1}{2}$, or $\frac{1}{4}$ full).

12. Notify the Chemical Management POC when the chemical has been picked-up or transferred providing the disposition status from the list below:

- Transferred to another TOC organization (including TOC subcontractor)
- Transferred on-site to another Hanford contractor
- Excessed per TFC-BSM-CP_CPR-C-18
- Recycled
- Waste (hazardous and non-regulated).

Chemical
Management
POC or Delegate

13. Update the chemical inventory in the CITS database as needed.

5.0 DEFINITIONS

Hazardous Material Storage Facility. A building, a portion of a building, or exterior area approved for the storage of hazardous materials in excess of exempt amounts as defined in NFPA 1, "Uniform Fire Code."

Layering. A condition where a liquid separates into two or more layers with a distinct boundary (e.g., oil and water).

6.0 RECORDS

The following records are generated during the performance of this procedure.

- Certified data supporting preparation of Hanford Site EPCRA Reports:
 - Chemical inventory data
 - Data supporting TRI reporting determinations
 - Data certifications
 - Contractor certifications (as applicable).

The record custodian identified in the Company Level Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.

Information added during the addition and update of the CITS database while performing such activities as receiving, storage, or inspection of reactive and time-sensitive chemicals are not record materials. This database can be used for general informational use reports for day-to-day operations.

Data generated during the inspection of reactive and time-sensitive chemicals is not record material. An informational copy of the inspection results will be kept in the CITS database.

7.0 SOURCES

7.1 Requirements

1. 10 CFR 851, "Worker Safety and Health Program."
2. 29 CFR 1910.106, "Flammable and Combustible Liquids."
3. 29 CFR 1910.119, "Process Safety Management of Highly Hazardous Chemicals."
4. 29 CFR 1910.1200, "Hazard Communication."
5. 40 CFR 68.130, "List of substances."
6. 40 CFR 302.4, "Designation of Hazardous Substances."
7. 40 CFR 355, "Emergency Planning and Notification."
8. 40 CFR 370, "Hazardous Chemical Reporting Community Right-to-Know."
9. 40 CFR 372, "Toxic Chemical Release Reporting Community Right-to-Know."
10. 41 CFR 101-42, "Utilization and Disposal of Hazardous Materials and Certain Categories of Property."
11. 42 USC 13101, "Findings and Policy."
12. 42 USC 13106, "Source Reduction & Recycling Data Collection."

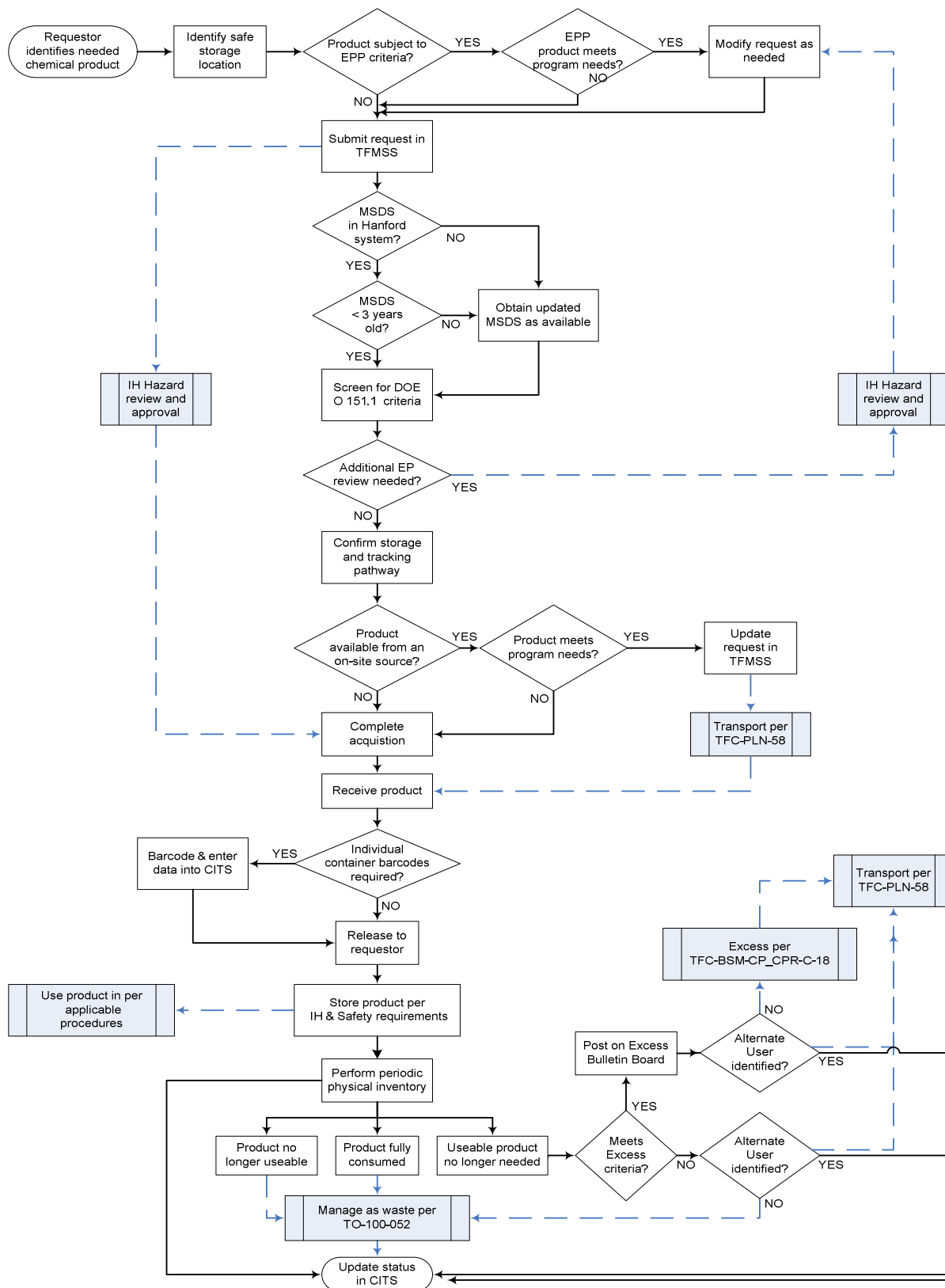
13. DOE-0223, "Emergency Plan Implementing Procedures," RLEP 3.27, "Hazard Surveys."
14. DOE O 151.1C, "Comprehensive Emergency Management System."
15. DOE O 420.1B, "Facility Safety."
16. DOE O 436.1, "Departmental Sustainability."
17. DOE/RL-94-02, "Hanford Emergency Management Program."
18. Executive Order 13423, "Strengthening Federal Environmental, Energy, and Transportation Management."
19. Executive Order 13514, "Federal Leadership in Environmental, Energy, and Economic Performance."
20. ORP M 420.1-1, R1, "ORP Fire Protection Program."
21. RPP-MP-003, "Integrated Environment, Safety, and Health Management System Description for the Tank Operations Contractor."
22. TFC-PLN-58, "Chemical Management Plan."

7.2 References

1. ATS-310-4.05, "222-S Laboratory Complex Chemical Hygiene Plan."
2. ATS-LO-150-062, "Management of Reactive and Time-Sensitive Chemicals in the Laboratory."
3. ATS-LO-150-063, "222-S Laboratory Chemical Management."
4. DOE-0360, "Hanford Site Confined Space Permit."
5. RPP-11192, "Tank Farms Chemical Compatibility Evaluation."
6. TF-AOP-011, "Response to Chemical and/or Radiological Events."
7. TFC-BSM-CP_CPR-C-01, "Purchasing Card (P-Card)."
8. TFC-BSM-CP_CPR-C-05, "Procurement of Services."
9. TFC-BSM-CP_CPR-C-06, "Procurement of Items (Materials)."
10. TFC-BSM-CP_CPR-C-18, "Material Receipt, Storage, Issuance, Return, and Excess Control."
11. TFC-BSM-IRM_DC-C-02, "Records Management."
12. TFC-ESHQ-FP-STD-03, "Flammable/Combustible Liquids."

13. TFC-ESHQ-FP-STD-13, "Fire Protection Requirements for Hazardous Material and Used Waste Absorbing Material Storage."
14. TFC-ESHQ-IH-STD-11, "Carcinogen Control."
15. TFC-ESHQ-Q_C-C-01, "Problem Evaluation Request."
16. TFC-ESHQ-S_IH-C-02, "Hazard Communication."
17. TFC-ESHQ-S-STD-25, "Storing, Using, Handling, and Transporting Compressed and Liquefied Gases."
18. TFC-PLN-61, "Tank Operations Contractor Training and Qualification Plan."
19. TFC-PLN-123, "Environmental Management System Description."
20. TFC-PLN-125, "Pollution Prevention and Sustainable Program Plan."
21. TO-100-052, "Perform Waste Generation, Segregation, Accumulation and Clean-up."

Figure 1. Chemical Management Process.



ATTACHMENT A – CHEMICAL MANAGEMENT CRITERIA

This guide provides supplemental information in determining when chemicals are subject to management in accordance with TFC-PLN-58 and this procedure.

I. Examples of chemicals that are managed by this procedure.

- Pest and weed control products
- Solvents, paints, chemicals, acids/bases, lubricants, and adhesives
- Industrial or commercial (i.e. non-consumer) packaged cleaning products
- All compressed gas cylinders and aerosol cans
- Ice melt products such as rock salt, Safe Step® or Meltdown™
- Construction materials such as concrete, asphalt, and abrasives
- Absorbent materials such as CleanSweep®, Waterworks SP-40, or CleanupIV
- Products that release hazardous chemicals during normal use or foreseeable conditions including release of fume or dusts (e.g., metal stock, welding materials, lead or lead containing items, lead/acid batteries asbestos, beryllium, or beryllium containing items).

II. Examples of chemicals that are exempt from the processes in this procedure.

NOTE 1: Management may direct that MSDS/SDS for these articles be obtained from the manufacturer or distributor as available.

NOTE 2: These products may still be subject to requirements such as Sustainable Acquisition, flammable quantity limits and waste management requirements for empty or spent containers.

- Non-aerosol personal use products such as:
 - Sun screen
 - Lens wipes
 - Cosmetics
 - Insect repellent
 - Medicines
 - First aid supplies
- Potable and non-potable water
- Non-aerosol consumer packaged office supplies for use in an office setting. Examples include but may not be limited to:
 - Markers
 - Stamp pads
 - Adhesives
 - Printer and copier toners

ATTACHMENT A – CHEMICAL MANAGEMENT CRITERIA (cont.)

- Non-aerosol consumer packaged cleaning supplies intended for use by non-janitorial staff in an office/lunchroom setting. Examples include but may not be limited to:
 - White board cleaner
 - Cleaning wipes
 - Dishwashing fluid
 - Air freshener.

Manufactured articles that will not release a hazardous chemical under normal or anticipated conditions of use such as circuit boards, light bulbs, lead shielding and sealed alkaline batteries

III. **Examples of chemicals that may or may not be exempt from the processes in this procedure.**

Certain categories of chemicals are exempt from some requirements addressed by this procedure but may be regulated by others. In accordance with DOE guidelines, these chemicals will be managed in accordance with the most conservative requirement. Determining factors can include specific hazard(s), constituents, quantity, storage location, and how the material is used. The Chemical Management POC will determine which requirements apply as part of the acquisition review. Some of these products include:

- Consumer packaged cleaning products used outside of an office/lunchroom setting such as all-purpose cleaners, sanitizers, dish soap and products used or maintained by janitorial staff.
- Consumer packaged office supplies used outside of an office/lunchroom setting such as specialty markers, adhesives, white board cleaner and hand sanitizer.
- Gasoline and/or diesel fuel.

IV. **Chemicals with higher than normal hazards.**

Some chemicals have higher than normal hazards. Additional controls and/or training may apply when acquiring, storing, handling or using these chemicals. Such chemicals can include:

- Carcinogens
- Highly volatile organic chemicals (e.g., methyl ethyl ketone or vinyl cement)
- Highly toxic chemicals (chemicals noted with a U.S. Department of Transportation (DOT) Poison label or a DOT Inhalation Hazard label)
- Highly corrosive chemicals (e.g., sodium hydroxide or muriatic acid)
- Reactive and shock sensitive chemicals (e.g., organic peroxide formers).